

Study finds lowering nicotine decreases addictiveness of smoking in vulnerable populations

October 20 2020



A sample package of unlabeled study cigarettes used by researchers at the University of Vermont, Brown University and Johns Hopkins University. Study cigarettes included three different nicotine content categories: very-low nicotine, moderately-low, or control-dose (comparable to store-bought). Credit: Vermont Center on Behavior and Health, University of Vermont

More than 480,000 U.S. deaths per year, as well as diseases affecting 16 million living Americans, can be attributed to cigarette smoking,

according to the Centers for Disease Control and Prevention. In particular, this behavior continues to be overrepresented among those with mental illness, substance use disorders, and socioeconomic disadvantage.

An October 20 study in *JAMA Network Open* provides evidence that, even in smokers from [vulnerable populations](#), reducing [nicotine](#) content to low levels decreases addictiveness—a timely finding as the Food and Drug Administration (FDA) considers a policy to lower nicotine content in all cigarettes sold in the U.S.

Led by Stephen T. Higgins, Ph.D., director of the Vermont Center on Behavior and Health at the University of Vermont's (UVM) Larner College of Medicine, in collaboration with colleagues at Brown University and Johns Hopkins University, the study sought to determine if reducing the nicotine content of cigarettes decreases [smoking](#) rates and nicotine dependence severity among adults with [psychiatric disorders](#) or socioeconomic disadvantage.

Three double-blind, randomized clinical trials were conducted at UVM, Brown, and Johns Hopkins between October 2016 and September 2019, with data analyzed from September 2019 to July 2020. A total of 775 daily smokers with affective disorders, opioid use disorder, or socioeconomic disadvantage who were NOT currently trying to quit smoking were deemed eligible.

Participants were randomly assigned to use research cigarettes for 12 weeks that contained either 0.4 mg nicotine/g tobacco, 2.4 mg nicotine/g tobacco (both known as very low-nicotine content cigarettes or VLNCs), or 15.8 mg nicotine/g tobacco (a level comparable to a standard commercial cigarette). NIH provided the study cigarettes, and all were identical in appearance. Assignment to the two VLNCs decreased daily smoking rate by an average of roughly 30 percent, as well as nicotine

dependence severity and biochemical measures of smoke exposure compared to those using the cigarettes with nicotine content at levels in commercial cigarettes.

"We know that lower smoking rate and dependence severity are two important predictors of successful smoking cessation should someone attempt to quit," said Higgins, who is presenting these latest findings to a conference of tobacco researchers and NIH-FDA officials on October 20, 2020. "Our findings in this and earlier studies suggest that lowering the nicotine content in all cigarettes to minimally addictive levels would benefit all smokers, including those most vulnerable to smoking and addiction."

Provided by University of Vermont

Citation: Study finds lowering nicotine decreases addictiveness of smoking in vulnerable populations (2020, October 20) retrieved 19 April 2024 from <https://medicalxpress.com/news/2020-10-lowering-nicotine-decreases-addictiveness-vulnerable.html>

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